

Serial No.: 09/135,804
Art Unit : 1764

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13 at least one catalytic converter element installed within said
14 forward portion of said canister immediately adjacent said inlet
15 end, with said catalytic converter element having an outer diameter
16 and including a substrate having a plurality of longitudinal
17 passages therethrough, with each of said passages being defined by
18 a plurality of substrate walls[, said passages being parallel with
19 the longitudinal axis of said canister];

20 a resonator element installed within said rearward portion of
21 said canister, with said resonator element having a hollow core, a
22 forward end, a rearward end, an outer diameter, and a plurality of
23 sound attenuating perforations formed radially therethrough;

24 said outer diameter of said resonator element being smaller
25 than said rearward inner diameter of said canister, and defining a
26 sound attenuating plenum therebetween; and

27 said inlet end of said canister, said catalytic converter
28 element, said hollow core of said resonator element, and said
29 outlet end of said canister all being axially aligned [along said
30 longitudinal axis] with one another for providing straight through
31 flow of engine exhaust therethrough.

1 11. (Twice Amended) A catalytic converter and resonator
2 combination device for use in an exhaust system of an internal
3 combustion engine, whereby said device being disposed between an
4 exhaust manifold and an exhaust tail pipe or an exhaust muffler,
said device [comprising] consisting essentially of:

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6 a canister for installing in the exhaust system of the
7 internal combustion engine, said canister [having a longitudinal
8 axis, and] including a pair of inlets each having a substantially
9 conical shape, a forward portion adjacent said inlets, a rearward
10 portion adjacent said forward portion, a pair of outlets each
11 having a substantially conical shape adjacent said rearward
12 portion, a forward inner circumference, and a rearward inner
13 diameter;

14 at least one catalytic converter element installed within said
15 forward portion of said canister immediately adjacent said inlet
16 end, with said catalytic converter element having an outer
17 circumference and including a substrate having a plurality of
18 longitudinal passages therethrough, with each of said passages
19 being defined by a plurality of substrate walls[, said passages
20 being parallel with the longitudinal axis of said canister];

21 a first and a second resonator element installed within said
22 rearward portion of said canister, with each said resonator element
23 having a hollow core, a forward end, a rearward end, an outer
24 diameter, and a plurality of sound attenuating perforations
25 therethrough, with each said resonator element being disposed
26 alongside one another;

27 said outer diameter of each said resonator element being
28 smaller than said rearward inner diameter of said canister, and
defining a sound attenuating plenum therebetween; and

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30 said inlets of said canister, said catalytic converter
31 element, said hollow core of each said resonator element, and said
32 outlets of said canister all being axially parallel to one another
33 [and said longitudinal axis] for providing straight through flow of
34 engine exhaust therethrough.

1 21. (Amended) A catalytic converter and resonator combination
2 device for use in an exhaust system of an internal combustion
3 engine, whereby said device being disposed between an exhaust
4 manifold and an exhaust tail pipe or an exhaust muffler, said
5 device [comprising] consisting essentially of:

6 a canister for installing in the exhaust system of the
7 internal combustion engine, said canister [having a longitudinal
8 axis, and] including at least one inlet having a substantially
9 conical shape, a forward portion adjacent said at least one inlet,
10 a rearward portion adjacent said forward portion, at least one
11 outlet having a substantially conical shape adjacent said rearward
12 portion, a forward inner circumference, and a rearward inner
13 diameter;

14 at least one catalytic converter element installed within said
15 forward portion of said canister immediately adjacent to said inlet
16 end, with said catalytic converter element having an outer
17 circumference and including a substrate having a plurality of
18 longitudinal passages therethrough, with each of said passages

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19 being defined by a plurality of substrate walls[, said passages
20 being parallel with the longitudinal axis of said canister];

21 at least one resonator element installed within said rearward
22 portion of said canister, with said at least one resonator element
23 having a hollow core, a forward portion, a rearward portion, an
24 outer diameter, and a plurality of sound attenuating perforations
25 formed radially through said forward portion thereof, with said
26 rearward portion thereof being devoid of perforations therethrough;

27 said outer diameter of said at least one resonator element
28 being smaller than said rearward inner diameter of said canister,
29 and defining a sound attenuating plenum therebetween;

30 said at least one inlet of said canister, said at least one
31 catalytic converter element, said hollow core of said at least one
32 resonator element, and said at least one outlet end of said
33 canister all being axially aligned [along said longitudinal axis]
34 with one another for providing straight through flow of engine
35 exhaust therethrough;

36 said rearward portion of said at least one resonator element
37 extending outwardly beyond said at least one outlet of said
38 canister; and

39 said at least one resonator element being selectively axially
40 positionable within said canister for selectively attenuating
41 exhaust sound frequencies in a predetermined sound frequency range.